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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/538,485

03/17/2006

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EXAMINER

CHAU, LINDA N

ART UNIT

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1794

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12/03/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/538,485	Applicant(s) MINACHI ET AL.	
	Examiner LINDA CHAU	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11/3/09.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-9 and 11-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4-9, and 11-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/12/09 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2, 4-6, 7-9, and 11-14 are rejected under 35 U.S.C. 103(a) as obvious over Yamamoto et al. (*Magnetic Properties of Ba-Zn-System W-Type Hexagonal Ferrite Magnets*).

Regarding claims 1-2, 4-6, 9, 14, Yamamoto teaches sintered magnets and powders (pg. 763) consisting of the compound $\text{Ba}_{1.092}\text{Zn}_{1.725}\text{Fe}^{2+}_{0.410}\text{Fe}^{3+}_{15.848}\text{O}_{27}$ (Abstract) based on the amount of 4.0 wt% of BaO (Table 2), in which the compound doesn't teach the amounts as claimed. However, this compound is a result effective variable. The examiner deems that it would have been obvious to one of ordinary skill in the art at the time of the invention to have

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determined the optimum value of the results effective variable to be as presently claimed, through routine experimentation, especially given the knowledge in the art that Yamamoto teaches that BaO content affects the Zn^{2+} , Fe^{2+} , or Fe^{3+} (pg. 765) and that the addition of BaO can be *of 3.0 wt% or more* in order to contribute the stabilization of the W phase of the magnets (pg. 758). *In re Boesch*, 205 USPQ 215 (CCPA 1980); *In re Geisler*, 116 F. 3d 1465, 43 USPQ2d 1362, 1365 (Fed. Cir. 1997); *In re After*, 220 F.2d, 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Regarding claims 7-8 and 11-13, given that Yamamoto disclose magnetic powder or magnet as presently claimed, it is clear that the magnetic powder intrinsically possess saturation magnetization as presently claimed while the magnet would intrinsically possess saturation magnetization, squareness, and residual magnetic flux density as presently claimed.

Claim 7-8, 11, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto et al. (*Magnetic Properties of Ba-Zn-System W-Type Hexagonal Ferrite Magnets*) and in view of Toyota (US 5,866,028).

Regarding claim 7, Yamamoto teaches a magnet powder as set forth above, however, doesn't teach that the ferrite magnet powder has a saturation magnetization of 5.0 kG or more. Toyota teaches a W-type ferrite magnet (Abstract) having a saturation magnetization of 5.0 kG (col. 7, line 65). It would have been obvious to one of ordinary skill in the art at the time of the invention to have Yamamoto's magnet to be of 5.0 kG of saturation magnetization in order to fabricate a material with stronger ferromagnetism (col. 1, lines 46-47).

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Regarding claims 8 and 11, Yamamoto teaches a magnetic powder as set forth above. Toyota teaches a W-type ferrite magnet (Abstract) having a saturation magnetization of 5.0 kG (col. 7, line 65) but doesn't teach a saturation magnetization of 5.1 kG or more. It would have been obvious to one of ordinary skill in the art at the time of the invention to optimize Toyota's magnetization to 5.1 kG in Yamamoto's magnet, since Toyota teaches that having a larger degree of magnetization will have a much stronger ferromagnetism (col. 1, lines 39-47).

Regarding claim 13, Toyota teaches a saturation magnetization of 5.0 kG and a residual magnetic flux density of 4.8 kG (col. 7, line 65). It would have been obvious to one of ordinary skill in the art at the time of the invention to have Yamamoto's magnet to be of 5.0 kG of saturation magnetization in order to fabricate stronger ferromagnetism (col. 1, lines 46-47). Further, it would have been obvious to one of ordinary skill in the art at the time of the invention to have Yamamoto's magnet to be of 4.2 kG in residual magnetic flux density as taught by Toyota in order to achieve excellent magnetic property (col. 2, lines 4-11).

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto et al. (*Magnetic Properties of Ba-Zn-System W-Type Hexagonal Ferrite Magnets*) and in view of Taguchi et al. (US 6,258,290).

Regarding claim 12, Yamamoto teaches a magnet powder as set forth above but doesn't teach a saturation magnetization of 5.0 kG or more and a squareness of 80% or more. Toyota teaches a W-type ferrite magnet (Abstract) having a saturation magnetization of 5.0 kG (col. 7, line 65). It would have been obvious to one of ordinary skill in the art at the time of the invention to have Yamamoto's magnet to be of 5.0 kG of saturation magnetization in order to

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fabricate stronger ferromagnetism (col. 1, lines 46-47). Further, Taguchi teaches a magnet powder of having a squareness of more than 80% (Table 4). It would have been obvious to one of ordinary skill in the art at the time of the invention to have Yamamoto's magnet be of 80% in squareness, since Taguchi teaches that it will provide excellence in demagnetization (col. 33, lines 52-53).

Claims 15-17 are rejected under 35 U.S.C. 103(a) as obvious over Yamamoto et al. (*Magnetic Properties of Ba-Zn-System W-Type Hexagonal Ferrite Magnets*) and in view of Kijima et al. (JP 02-180004; herein referred to under the English translation PTO 09-1223).

Regarding claim 15-16, Yamamoto teaches the ferrite magnet powder as claimed, however fails to teach that A is Sr and/or B. Kijima teaches a ferrite magnet powder have a composition of $\text{MeFe}^{2+}_{2+x}\text{Fe}^{3+}_{16-x}\text{O}_{27}$, wherein M is consisting of Ba, Sr, and Pb (claim 1). It would have been obvious to one of ordinary skill in the art at the time of the invention to have Yamamoto's elements A to be Sr and/or Ba, as taught by Kijima, in order to improve the magnetic characteristics of the magnets (pg. 14).

Regarding claim 17, Yamamoto teaches the ferrite magnet powder as claimed, as set forth above, however, fails to teach that is a bonded magnet and contains a resin phase. However, it is noted that the term "bonded magnet" has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness

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but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). Kijima teaches ferrite powders with similar compounds and a resin phase that disperses and retains the ferrite magnetic powder (claim 2). Further, Kijima uses the magnetic powders in plastic magnets or bonded magnets and teaches that it known in the art to incorporate the ferrite magnet powder in sintered magnets (pg. 3). It would have been obvious to one of ordinary skill in the art at the time of the invention that Yamamoto's magnets contain a resin phase, as taught by Kijima, in order to produce the magnets effectively (pg. 6 and 9).

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto et al. (*Magnetic Properties of Ba-Zn-System W-Type Hexagonal Ferrite Magnets*), in view of Kijima et al. (JP 02-180004; herein referred to under the English translation PTO 09-1223), and further in view of Taguchi et al. (US 6,258,290).

Regarding claim 18, Yamamoto teaches a magnet powder as set forth above in claim 1 but Yamamoto doesn't teach that the ferrite magnet powder may be used in a magnetic layer of a magnetic recording medium. Taguchi teaches a hexagonal magnet ferrite powder is used in a magnetic layer over a substrate (col. 9, lines 44-49). It would have been obvious to one of ordinary skill in the art at the time of the invention to have Yamamoto's magnet powder to be used in a magnetic layer as taught by Taguchi in order to have multiple usages of the magnet powders.

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Claim 19-20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto et al. (*Magnetic Properties of Ba-Zn-System W-Type Hexagonal Ferrite Magnets*), in view of Kijima et al. (JP 02-180004; herein referred to under the English translation PTO 09-1223), in view of Taguchi et al. (US 6,258,290), and further in view of Toyota (US 5,866,028).

Regarding claim 19-20, Yamamoto in view of Taguchi teaches a magnetic recording medium as set forth above but doesn't teach a saturation magnetization of 5.2 kG. Toyota teaches a residual magnetic density is of 4.8 kG and a saturation magnetization of 5.0 kG but doesn't explicitly teach a saturation magnetization can be of 5.2 kG or more (col. 7, line 65). However, it would have been obvious to one of ordinary skill in the art at the time of the invention to optimize Toyota's magnetization to 5.2 kG in the recording medium, since Toyota teaches that having a larger degree of magnetization will have a much stronger ferromagnetism which will be optimal in a magnetic recording medium (col. 1, lines 39-47).

Claims 1-9 and 11-17 are rejected under 35 U.S.C. 103(a) as obvious over Kijima et al. (JP 02-180004; herein referred to under the English translation PTO 09-1223), and in view of Yamamoto et al. (*Magnetic Properties of Ba-Zn-System W-Type Hexagonal Ferrite Magnets*).

Regarding claims 1, 3-6, 9, and 14-17, Kijima teaches a ferrite magnet powder have a composition of $\text{MeFe}^{2+}_{2+x}\text{Fe}^{3+}_{16-x}\text{O}_{27}$, wherein M is consisting of Ba, Sr, and Pb, and $x = +0.05$ to -0.10 . Further, Kijima discloses that Zn is added to the compound such that zinc is 1.0-10mol% of Fe^{2+} (claim 1). Kijima doesn't explicitly disclose that Zn is in a form $\text{Zn}_{(\text{ax})}$ described by the

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limitation. However, on the one hand, it would have been obvious to one of ordinary skill in the art at the time of the invention to have the range of zinc as described by the applicant based upon the mole percentages. In light of the amount of Zn disclosed by Kijima, it would have been obvious to one of ordinary skill in the art at the time of the invention to use amounts of Zn and Fe^{2+} , including those presently claimed, in order to produce stabilized W phase that does not deteriorate (pg. 7). On the other hand, given that Kijima discloses ferrite magnet powder with similar properties and functions, as presently claimed, it would appear that the composition of zinc would overlap the range claimed by the applicant. Furthermore, Kijima also teaches a resin phase that disperses and retains the ferrite magnetic powder (claim 2). Further, Kijima uses the magnetic powders in plastic magnets or bonded magnets and teaches that it known in the art to incorporate the ferrite magnet powder in sintered magnets (pg. 3). However, Kijima further emphasizes that plastic magnets have various advantages over sintered magnets (pg. 3-4).

Kijima fails to teach the composition of Fe^{2+} , since it has a range of 1.9-2.05 versus the presently claim range of 0.45-1.54.

Yamamoto teaches magnetic powders (pg. 763) consisting of the compound $\text{Ba}_{1.092}\text{Zn}_{1.725}\text{Fe}^{2+}_{0.410}\text{Fe}^{3+}_{15.848}\text{O}_{27}$ (Abstract) based on the amount of 4.0 wt% of BaO (Table 2), in which the compound doesn't teach the amounts as claimed. However, this compound is a result effective variable. the examiner deems that it would have been obvious to one of ordinary skill in the art at the time of the invention to have determined the optimum value of the results effective variable to be as presently claimed, through routine experimentation, especially given the knowledge in the art that Yamamot teaches that BaO content affects the Zn^{2+} , Fe^{2+} , or Fe^{3+} (pg. 765) and that the addition of BaO can be *of 3.0 wt% or more* in order to contribute the

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stabilization of the W phase of the magnets (pg. 758). *In re Boesch*, 205 USPQ 215 (CCPA 1980); *In re Geisler*, 116 F. 3d 1465, 43 USPQ2d 1362, 1365 (Fed. Cir. 1997); *In re After*, 220 F.2d, 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to reduce the Fe^{2+} range of Kijima to be of 1.54, as claimed, since Yamamoto teaches that the compound is a result effect variable and in order to contribute the stabilization of the W phase of the magnets (pg. 758).

Regarding claim 2, Kijima teaches that the powder is characterized in a W-type ferrite phase (pg. 7).

Regarding claim 7-8 and 11-13, given that Kijima disclose magnetic powder or magnet as presently claimed, it is clear that the magnetic powder would inherently or intrinsically possess saturation magnetization as presently claimed while the magnet would inherently or intrinsically possess saturation magnetization, squareness, and residual magnetic flux density as presently claimed.

Claim 7-8, 11, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kijima et al. (JP 02-180004; herein referred to under the English translation PTO 09-1223), in view of Yamamoto et al. (*Magnetic Properties of Ba-Zn-System W-Type Hexagonal Ferrite Magnets*), and further in view of Toyota (US 5,866,028).

Regarding claim 7, Kijima in combination with Yamamoto teaches a magnet powder as set forth above, however, doesn't teach that the ferrite magnet powder has a saturation

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magnetization of 5.0 kG or more. Toyota teaches a W-type ferrite magnet (Abstract) having a saturation magnetization of 5.0 kG (col. 7, line 65). It would have been obvious to one of ordinary skill in the art at the time of the invention to have Kijima magnet to be of 5.0 kG of saturation magnetization in order to fabricate stronger ferromagnetism (col. 1, lines 46-47).

Regarding claims 8 and 11, Kijima teaches a magnetic powder as set forth above. Toyota teaches a W-type ferrite magnet (Abstract) having a saturation magnetization of 5.0 kG (col. 7, line 65) but doesn't teach a saturation magnetization of 5.1 kG or more. It would have been obvious to one of ordinary skill in the art at the time of the invention to optimize Toyota's magnetization to 5.1 kG in Kijima's magnet, since Toyota teaches that having a larger degree of magnetization will have a much stronger ferromagnetism (col. 1, lines 39-47).

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Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kijima et al. (JP 02-180004; herein referred to under the English translation PTO 09-1223), in view of Yamamoto et al. (*Magnetic Properties of Ba-Zn-System W-Type Hexagonal Ferrite Magnets*), in view of Toyota (US 5,866,028), and further in view of Taguchi et al. (US 6,258,290).

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Regarding claim 12, Kijima in combination with Yamamoto teaches a magnet powder as set forth above but doesn't teach a saturation magnetization of 5.0 kG or more and a squareness of 80% or more. Toyota teaches a W-type ferrite magnet (Abstract) having a saturation magnetization of 5.0 kG (col. 7, line 65). It would have been obvious to one of ordinary skill in the art at the time of the invention to have Kijima magnet to be of 5.0 kG of saturation magnetization in order to fabricate stronger ferromagnetism (col. 1, lines 46-47). Further, Taguchi teaches a magnet powder of having a squareness of more than 80% (Table 4). It would have been obvious to one of ordinary skill in the art at the time of the invention to have Kijima's magnet be of 80% in squareness, since Taguchi teaches that it will provide excellence in demagnetization (col. 33, lines 52-53).

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Regarding claim 18, Kijima in combination of Yamamoto teaches a magnet powder as set forth above in claim 1 but Kijima doesn't teach that the ferrite magnet powder may be used in a magnetic layer of a magnetic recording medium. Taguchi teaches a hexagonal magnet ferrite powder is used in a magnetic layer over a substrate (col. 9, lines 44-49). It would have been obvious to one of ordinary skill in the art at the time of the invention to have Kijima's magnet powder to be used in a magnetic layer as taught by Taguchi in order to have multiple usages of the magnet powders.

Claims 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kijima et al. (JP 02-180004; herein referred to under the English translation PTO 09-1223), in view of Yamamoto et al. (*Magnetic Properties of Ba-Zn-System W-Type Hexagonal Ferrite Magnets*), in view of Taguchi et al. (US 6,258,290), and further in view of Toyota (US 5,866,028).

Regarding claim 19-20, Kijima in combination of Yamamoto and in view of Taguchi teaches a magnetic recording medium as set forth above but doesn't teach a saturation magnetization of 5.2 kG. Toyota teaches a residual magnetic density is of 4.8 kG and a saturation magnetization of 5.0 kG but doesn't explicitly teach a saturation magnetization can be of 5.2 kG or more (col. 7, line 65). However, it would have been obvious to one of ordinary skill in the art at the time of the invention to optimize Toyota's magnetization to 5.2 kG in the recording medium, since Toyota teaches that having a larger degree of magnetization will have a much stronger ferromagnetism which will be optimal in a magnetic recording medium (col. 1, lines 39-47).

Response to Arguments

Applicant's arguments with respect to claims 1, 2, 4-9, and 11-20 have been considered but are moot in view of the new ground(s) of rejection. Applicant has amended the claims so that the range of x is $0.30 \leq x \leq 0.70$. Therefore, new art has been applied, as set forth above.

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LINDA CHAU whose telephone number is (571)270-5835. The examiner can normally be reached on Monday-Thursday, 8:00-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Ruthkosky can be reached on (571) 272-1291. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Linda Chau
/LC/

/Holly Rickman/
Primary Examiner, Art Unit 1794